SUBSTITUTE SEQUENCE LISTING

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     Gleeson, Martin

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<120> Methods and Compositions for Synthesis of Nucleic Acid Molecules Using Multiple Recognition Sites

<130> 0942.5340002

<140> 10/005,876

<141> 2001-12-07

<150> 60/254,510

<151> 2000-12-08

<150> 60/291,972

<151> 2001-05-21

<150> 60/318,902

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<223> Vaccinia topoisomerase cleavable sequence

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<212> DNA

<213> artificial sequence

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<210> 32

<211> 12

<212> DNA

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<220>

<223> Vaccinia topoisomerase cleavable sequence

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<210> 33

<211> 28

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<213> artificial sequence

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<211> 12

<212> DNA

<213> artificial sequence

<220>

<223>   adapter oligonucleotide, TOPO D2

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<210>   35

<211>   11

<212>   DNA

<213>   artificial sequence

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<223>   adapter oligonucleotide, TOPO D5

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<210>   36

<211>   19

<212>   DNA

<213>   artificial sequence

<220>

<223>   adapter oligonucleotide, TOPO D4

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<210>   37

<211>   12

<212>   DNA

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<220>

<223>   oligonucleotide overhang sequence of TOPO D1 and TOPO D4

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<210> 38

<211> 15

<212> DNA

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<223> annealing oligonucleotide sequence, TOPO D3

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caactgtact atgtc   15

<210> 39

<211> 23

<212> DNA

<213> artificial sequence

<220>

<223> adapter oligonucleotide, TOPO H

<400> 39
agctcgccct tattccgata gtg   23

<210> 40

<211> 11

<212> DNA

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<223> adapter oligonucleotide, TOPO 16

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gaataagggc g   11

<210> 41

<211> 23

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<223> adapter oligonucleotide, TOPO 1

<400> 41   23
aattcgccct tattccgata gtg

<210> 42

<211> 12

<212> DNA

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<223> oligonucleotide overhang sequence of TOPO 1

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<210> 43

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<223> annealing oligonucleotide, TOPO 3

<400> 43   15
caacactatc ggaat

<210> 44

<211> 14

<212> DNA

<213> artificial sequence

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<223> DNA sequence of the N-terminus of a theoretical protein

<400> 44   14
atggatctga taaa

<210> 45

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<223> PCR primer

<400> 45   14
accgatctga taaa

<210> 46

<211> 27

<212> DNA

<213> artificial sequence

<220>

<223> DNA sequence of the C-terminus of a theoretical protein

<400> 46   27
aagtcggagc actcgacgac ggtgtag

<210> 47

<211> 17

<212> DNA

<213> artificial sequence

<220>

<223> reverse PCR primer sequence

<400> 47   17
aaacaccgtc gtcgagt

<210> 48

<211> 33

<212> DNA

<213> artificial sequence

<220>

<223> DNA sequence of the C-teminus of a theoretical protein

<400> 48   33
gcggttaagt cggagcactc gacgactgca tag

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<211> 24

<212> DNA

<213> artificial sequence

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<223> sequence of reverse primer without stop codon

<400> 49   24
tgcagtcgtc gagtgctccg actt

<210> 50

<211> 27

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<223> sequence of reverse primer with stop codon

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<400> 51   22
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<211> 32

<212> DNA

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<223> oligonucleotide primer

<400> 53
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<223> oligonucleotide primer

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<210> 57

<211> 41

<212> DNA

<213> artificial sequence

<220>

<223> oligonucleotide sequence

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<210> 58

<211> 41

<212> DNA

<213> artificial sequence

<220>

<223> oligonucleotide primer

<400> 58   41
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<210> 59

<211> 40

<212> DNA

<213> artificial sequence

<220>

<223> oligonucleotide primer

<400> 59   40
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<210> 60

<211> 40

<212> DNA

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<220>

<223> oligonucleotide primer

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<210> 61

<211> 20

<212> DNA

<213> artificial sequence

<220>

<223> oligonucleotide primer

<400> 61   20
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<210> 62

<211> 22

<212> DNA

<213> artificial sequence

<220>

<223> oligonucleotide primer

<400> 62   22
atgtaatacg actcactata gg

<210> 63

<211> 11

<212> DNA

<213> artificial sequence

<220>

<223> nucleotide primer

<400> 63   11
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<210> 64

<211> 11

<212> DNA

<213> artificial sequence

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<223> nucleotide primer

<400> 64   11
taggccaagg g

<210> 65

<211> 16

<212> DNA

<213> artificial sequence

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<223> amplified end of PCR product

<400> 65   16
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<210> 66

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<212> DNA

<213> artificial sequence

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<223> amplified end of PCR product

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<212> DNA

<213> artificial sequence

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<223> map of multiple cloning sites in plasmids
pcDNAGW-DT9(sc) and pENTR-DT(sc)

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ttcttgtaca aagtg

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<211> 10

<212> PRT

<213> artificial sequence

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<223> Amino acid sequence for pcDNAGW-DT9(sc) and pENTR-DT(sc)

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1   5   10

<210> 69

<211> 11

<212> PRT

<213> artificial sequence

<220>

<223> Amino acid sequence for pcDNAGW-DT9(sc) and pENTR-DT(sc)

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<210> 70

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<223> Nucleotide sequence of plasmid pENTR/D-TOPO

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<222> (691)..(699)

<223> "n" can be any nucleotide: a, t, c, g


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gcgcccaata cgcaaaccgc ctctccccgc gcgttggccg attcattaat gcagctggca  180

cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaata cgcgtaccgc  240

tagccaggaa gagtttgtag aaacgcaaaa aggccatccg tcaggatggc cttctgctta  300

gtttgatgcc tggcagttta tggcgggcgt cctgcccgcc accctccggg ccgttgcttc  360

acaacgttca aatccgctcc cggcggattt gtcctactca ggagagcgtt caccgacaaa  420

caacagataa aacgaaaggc ccagtcttcc gactgagcct ttcgttttat ttgatgcctg  480

gcagttccct actctcgcgt taacgctagc atggatgttt tcccagtcac gacgttgtaa  540
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agcaggctcc gcggccgccc cttcaccatg nnnnnnnnna agggtgggcg cgccgaccca    720

gctttcttgt acaaagttgg cattataaga aagcattgct tatcaatttg ttgcaacgaa    780

caggtcacta tcagtcaaaa taaaatcatt atttgccatc cagctgatat cccctatagt    840

gagtcgtatt acatggtcat agctgtttcc tggcagctct ggcccgtgtc tcaaaatctc    900

tgatgttaca ttgcacaaga taaaaatata tcatcatgaa caataaaact gtctgcttac    960

ataaacagta atacaagggg tgttatgagc catattcaac gggaaacgtc gaggccgcga   1020

ttaaattcca acatggatgc tgatttatat gggtataaat gggctcgcga taatgtcggg   1080

caatcaggtg cgacaatcta tcgcttgtat gggaagcccg atgcgccaga gttgtttctg   1140

aaacatggca aaggtagcgt tgccaatgat gttacagatg agatggtcag actaaactgg   1200

ctgacggaat ttatgcctct tccgaccatc aagcatttta tccgtactcc tgatgatgca   1260

tggttactca ccactgcgat ccccggaaaa acagcattcc aggtattaga agaatatcct   1320

gattcaggtg aaaatattgt tgatgcgctg gcagtgttcc tgcgccggtt gcattcgatt   1380

cctgtttgta attgtccttt aacagcgat cgcgtatttc gtctcgctca ggcgcaatca   1440

cgaatgaata acggtttggt tgatgcgagt gattttgatg acgagcgtaa tggctggcct   1500

gttgaacaag tctggaaaga aatgcataaa cttttgccat tctcaccgga ttcagtcgtc   1560

actcatggtg atttctcact tgataacctt attttgacg aggggaaatt aataggttgt   1620

attgatgttg acgagtcgg aatcgcagac cgataccagg atcttgccat cctatggaac   1680

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tcatgaccaa aatcccttaa cgtgagttac gcgtcgttcc actgagcgtc agaccccgta   1920

gaaaagatca aaggatcttc ttgagatcct ttttttctgc gcgtaatctg ctgcttgcaa   1980

acaaaaaaac caccgctacc agcggtggtt tgtttgccgg atcaagagct accaactctt   2040

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atcctgttac cagtggctgc tgccagtggc gataagtcgt gtcttaccgg gttggactca   2220

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cccagcttgg agcgaacgac ctacaccgaa ctgagatacc tacagcgtga gcattgagaa   2340

agcgccacgc ttcccgaagg gagaaaggcg gacaggtatc cggtaagcgg cagggtcgga   2400
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<223> Nucleotide sequence of plasmid pENTR/SD/D-TOPO

<220>

<221> unsure

<222> (710)..(715)

<223> "n" can be any nucleotide: a, t, c, g


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gcgcccaata cgcaaaccgc ctctccccgc gcgttggccg attcattaat gcagctggca    180

cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaata cgcgtaccgc    240

tagccaggaa gagtttgtag aaacgcaaaa aggccatccg tcaggatggc cttctgctta    300

gtttgatgcc tggcagttta tggcgggcgt cctgcccgcc accctccggg ccgttgcttc    360

acaacgttca aatccgctcc cggcggattt gtcctactca ggagagcgtt caccgacaaa    420

caacagataa aacgaaaggc ccagtcttcc gactgagcct ttcgtttta ttgatgcctg    480

gcagttccct actctcgcgt taacgctagc atggatgttt cccagtcac gacgttgtaa    540

aacgacggcc agtcttaagc tcgggcccca aataatgatt ttattttgac tgatagtgac    600

ctgttcgttg caacaaattg atgagcaatg cttttttata atgccaactt tgtacaaaaa    660

agcaggctcc gcggccgcct tgtttaactt taagaaggag cccttcaccn nnnnnaaggg    720

tgggcgcgcc gacccagctt tcttgtacaa agttggcatt ataagaaagc attgcttatc    780

aatttgttgc aacgaacagg tcactatcag tcaaaataaa atcattattt gccatccagc    840
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tgatatcccc tatagtgagt cgtattacat ggtcatagct gtttcctggc agctctggcc      900

cgtgtctcaa aatctctgat gttacattgc acaagataaa aatatatcat catgaacaat      960

aaaactgtct gcttacataa acagtaatac aaggggtgtt atgagccata ttcaacggga     1020

aacgtcgagg ccgcgattaa attccaacat ggatgctgat ttatatgggt ataaatgggc     1080

tcgcgataat gtcgggcaat caggtgcgac aatctatcgc ttgtatggga agcccgatgc     1140

gccagagttg tttctgaaac atggcaaagg tagcgttgcc aatgatgtta cagatgagat     1200

ggtcagacta aactggctga cggaatttat gcctcttccg accatcaagc attttatccg     1260

tactcctgat gatgcatggt tactcaccac tgcgatcccc ggaaaaacag cattccaggt     1320

attagaagaa tatcctgatt caggtgaaaa tattgttgat gcgctggcag tgttcctgcg     1380

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gcgtaatggc tggcctgttg aacaagtctg gaaagaaatg cataaacttt tgccattctc     1560

accggattca gtcgtcactc atggtgattt ctcacttgat aaccttattt ttgacgaggg     1620

gaaattaata ggttgtattg atgttggacg agtcggaatc gcagaccgat accaggatct     1680

tgccatccta tggaactgcc tcggtgagtt ttctccttca ttacagaaac ggctttttca     1740

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agcgtcagac cccgtagaaa agatcaaagg atcttcttga tcctttttt ttctgcgcgt      1980

aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg gtggtttgtt tgccggatca     2040

agagctacca actcttttc cgaaggtaac tggcttcagc agagcgcaga taccaaatac      2100

tgtccttcta gtgtagccgt agttaggcca ccacttcaag aactctgtag caccgcctac     2160

atacctcgct ctgctaatcc tgttaccagt ggctgctgcc agtggcgata agtcgtgtct     2220

taccgggttg gactcaagac gatagttacc ggataaggcg cagcggtcgg gctgaacggg     2280

gggttcgtgc acacagccca gcttggagcg aacgacctac accgaactga gatacctaca     2340

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<210> 72

<211> 5543

<212>   DNA

<213>   artificial sequence

<220>

<223>   Nucleotide sequence of plasmid pcDNA3.2/V5/GWD-TOPO

<220>

<221>   unsure

<222>   (958)..(966)

<223>   "n" can be any nucleotide: a, t, c, g

<400>   72

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tggagttccg cgttacataa cttacggtaa atggcccgcc tggctgaccg cccaacgacc     360
cccgcccatt gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc     420
attgacgtca atgggtggac tatttacggt aaactgccca cttggcagta catcaagtgt     480
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atgcccagta catgacctta tgggactttc ctacttggca gtacatctac gtattagtca     600
tcgctattac catggtgatg cggttttggc agtacatcaa tgggcgtgga tagcggtttg     660
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ggggcatccc tttagggttc cgatttagtg ctttacggca cctcgacccc aaaaaacttg     1620

attagggtga tggttcacgt agtgggccat cgccctgata gacggttttt cgccctttga     1680

cgttggagtc cacgttcttt aatagtggac tcttgttcca aactggaaca acactcaacc     1740

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aaaatgagct gatttaacaa aaatttaacg cgaattaatt ctgtggaatg tgtgtcagtt     1860

agggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca tgcatctcaa     1920

ttagtcagca accaggtgtg gaaagtcccc aggctcccca gcaggcagaa gtatgcaaag     1980

catgcatctc aattagtcag caaccatagt cccgcccta actccgccca tcccgcccct      2040

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gacgggcgtt ccttgcgcag ctgtgctcga cgttgtcact gaagcgggaa gggactggct     2520

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<210> 73

<211> 5173

<212> DNA

<213> artificial sequence

<220>

<223> Nucleotide sequence of plasmid pcDNA6.2/V5/GWD-TOPO

<220>

<221> unsure

<222> (958)..(966)

<223> "n" can be any nucleotide: a, t, c, g


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cgagcaaaat ttaagctaca acaaggcaag gcttgaccga caattgcatg aagaatctgc     180

ttagggttag gcgttttgcg ctgcttcgcg atgtacgggc cagatatacg cgttgacatt     240

gattattgac tagttattaa tagtaatcaa ttacggggtc attagttcat agcccatata     300

tggagttccg cgttacataa cttacggtaa atggcccgcc tggctgaccg cccaacgacc     360

cccgcccatt gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc     420

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actcacgggg atttccaagt ctccacccca ttgacgtcaa tgggagtttg ttttggcacc    720

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agggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca tgcatctcaa   1920

ttagtcagca accaggtgtg gaaagtcccc aggctcccca gcaggcagaa gtatgcaaag   1980

catgcatctc aattagtcag caaccatagt cccgccccta actccgccca tcccgcccct   2040

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<210> 74

<211> 69

<212> DNA

<213> artificial sequence

<220>

<223> Partial sequence of pENTR/SD-dTOPO

<220>

<221> unsure

<222> (64)..(69)

<223> "n" can be any nucleotide: a, t, c, g

<400> 74
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accatgnnnn nn

69

<210> 75

<211> 52

<212> DNA

<213> artificial sequence

<220>

<223> Nucleotide sequence of TOPO-D71

<400> 75
ggccgccttg tttaactttta agaaggagcc cttcaccgac tatgtacagtt g   52

<210> 76

<211> 31

<212> DNA

<213> artificial sequence

<220>

<223> Nucleotide sequence of TOPO-D73

<400> 76
ggccgccccc ttcaccgact atgtacagtt g   31

<210> 77

<211> 28

<212> DNA

<213> artificial sequence

<220>

<223> Nucleotide sequence of TOPO-D75

<400> 77
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<210> 78

<211> 14

<212> PRT

<213> artificial sequence

<220>

<223> Partial amino acid sequence of pENTR-dTOPO and
pcDNAGW-dTOPO

<400> 78

Leu Tyr Lys Lys Ala Gly Ser Ala Ala Ala Pro Phe Thr Met
1   5   10

<210> 79

<211> 13

<212> PRT

<213> artificial sequence

<220>

<223> Partial amino acid sequence of pENTR/SD-dTOPO,
pENTR-dTOPO, and pcDNAGW-dTOPO

<400> 79

Lys Gly Gly Arg Ala Asp Pro Ala Phe Leu Tyr Lys Val
1   5   10

<210> 80

<211> 15

<212> DNA

<213> artificial sequence

<220>

<223> Product of binding a topoisomerase to part of a nucleic
acid molecule

<220>

<221> unsure

<222> (13)..(15)

<223> "n" can be any nucleotide: a, t, c, g

<400> 80

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